

METHOD FOR DELAYING PUTREFACTION OF TREATING LIQUID

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Abstract of JP2000302619

PROBLEM TO BE SOLVED: To provide a method for delaying putrefaction of a treating liquid by which putrefaction of the treating liquid such as a cutting oil, a hydraulic oil, a metal drawing oil, a washing liquid, or the like, used in applying to various machines is delayed, and capable of preventing generation of malodor. **SOLUTION:** This method comprises a process wherein a useful microorganismic group in which an anaerobic microorganism and an aerobic microorganism live together is made to contain in a waste sand in a mold and the mixed sand is formed into spherical bodies and a process dipping the resultant spherically shaped putrefaction suppressor in a treating liquid such as a cutting oil, a hydraulic oil, a metal drawing oil, a washing liquid, or the like, used in applying to various machines such as a working machine. The waste sand in the mold can become a habitat for the useful microorganismic group. An antioxidant, or the like, produced from the useful microorganisms is diffused from the putrefaction suppressor.

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(54) 【発明の名称】 処理液の腐敗遅延処理方法

(57) 【要約】

【課題】 各種機械の使用の際に用いられる切削油、作動油、金属引抜き油、洗浄液等の処理液の腐敗を遅延させると共に、悪臭の発生を防止することができる、処理液の腐敗遅延処理方法を提供する。

【解決手段】 嫌気性微生物と好気性微生物とを共生させた有用微生物群を鋳型の廃砂に含有させてたとえば球形状に形成した腐敗抑止体を工作機械等の各種機械の使用の際に用いられる切削油、作動油、金属引抜き油、洗浄液等の処理液に浸漬させる工程を包含する。鋳型の廃砂は、有用微生物群の住処となる。腐敗抑止体からは、有用微生物から作り出される抗酸化物質等が飛散する。

【特許請求の範囲】

【請求項1】 嫌気性微生物と好気性微生物とを共生させた有用微生物群を鋳型の廃砂に含有させて形成された抗酸化作用を有する腐敗抑止体を各種機械の使用の際に用いられる処理液に混入する工程を包含する、処理液の腐敗遅延処理方法。

【請求項2】 前記有用微生物群の培養液と前記廃砂とを混練して混練物をつくる工程、前記混練物を所定形状に保型・成形する工程、および前記保型・成形された前記混練物を焼結して所定形状の腐敗抑止体を形成する工程を含む製造方法によって前記腐敗抑止体が製造される、請求項1に記載の処理液の腐敗遅延処理方法。

【請求項3】 前記腐敗抑止体を前記処理液に浸漬すると共に、前記有用微生物群を前記処理液にさらに注入する工程を包含する、請求項1または請求項2に記載の処理液の腐敗遅延処理方法。

【請求項4】 前記処理液は、切削油、作動油、金属引抜き油、フラッシング油、防錆油等の潤滑組成物を包含する、請求項1ないし請求項3のいずれかに記載の処理液の腐敗遅延処理方法。

【請求項5】 前記処理液は、洗浄液、清浄液等の洗浄性組成物を包含する、請求項1ないし請求項3のいずれかに記載の処理液の腐敗遅延処理方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本願発明は、処理液の腐敗遅延処理方法に関し、特に、たとえば工作機械等各種機械の使用の際に用いられる切削油、作動油、金属引抜き油、フラッシング油、防錆油等の潤滑組成物およびそれに類似するもの、および、たとえば機械部品を洗浄する洗浄機械に用いられる洗浄液、清浄液等の洗浄性組成物およびそれに類似するものを含む処理液の腐敗遅延処理方法に関する。

【0002】

【従来の技術】従来、NC旋盤等工作機械に用いられる切削油、作動油、防錆油等は、温度の高い機械の中で使われている間に腐敗してくるため、所定の期間使用された後、廃液としてそのまま廃棄処分されていた。そして、工作機械には、新たに切削油等が注入される。また、工作機械等で製造された各種部品等を洗浄機械で洗浄するときに用いられる洗浄液、清浄液などの使用についても、同様のことが行われていた。

【0003】

【発明が解決しようとする課題】しかしながら、このような腐敗した切削油等の廃液は、悪臭を発生し、その悪臭が工場内および工場周辺にまでおよぶことがある。特に、夏季などはこれら廃液の悪臭が酷いものとなり、工場内で作業する作業員の作業環境および工場周辺の住民にとっての生活環境を害するものとなっている。また、

切削油等の廃液を廃棄する周期が短くなればなる程、切削油等の取り替え頻度も多くなり、ランニングコストも高くなる。

【0004】それゆえに、本願発明の主たる目的は、各種機械の使用の際に用いられる切削油、作動油、洗浄液等の処理液の腐敗を遅延させると共に、処理液の悪臭発生を防止することができる、処理液の腐敗遅延処理方法を提供することである。

【0005】

【課題を解決するための手段】請求項1にかかる本願発明は、嫌気性微生物と好気性微生物とを共生させた有用微生物群を鋳型の廃砂に含有させて形成された抗酸化作用を有する腐敗抑止体を各種機械の使用の際に用いられる処理液に混入する工程を包含する、処理液の腐敗遅延処理方法である。請求項2にかかる本願発明は、有用微生物群の培養液と廃砂とを混練して混練物をつくる工程と、混練物を所定形状に保型・成形する工程と、保型・成形された混練物を焼結して所定形状の腐敗抑止体を形成する工程とを含む製造方法によって腐敗抑止体が製造される、請求項1にかかる処理液の腐敗遅延処理方法である。請求項3にかかる本願発明は、腐敗抑止体を処理液に浸漬すると共に、有用微生物群を処理液にさらに注入する工程を包含する、請求項1または請求項2にかかる処理液の腐敗遅延処理方法である。請求項4にかかる本願発明は、処理液が切削油、作動油、金属引抜き油、フラッシング油、防錆油等の潤滑組成物を包含する、請求項1ないし請求項3のいずれかにかかる処理液の腐敗遅延処理方法である。請求項5にかかる本願発明は、処理液が洗浄液、清浄液等の洗浄性組成物を包含する、請求項1ないし請求項3のいずれかにかかる処理液の腐敗遅延処理方法である。

〔作用〕腐敗抑止体に含有される有用性微生物群から作り出される抗酸化物質は、有機酸、アミノ酸、糖類、ビタミン等を含み、これらは有用微生物群の発酵を促進すると共に、切削油等の処理液の酸化を防止し、腐敗を防止する。すなわち、嫌気性微生物と好気性微生物とを共生させた有用微生物群からつくられ、抗酸化物質および有機酸は、処理液の悪臭源となる腐敗菌の増加を抑制する。また、鋳型の廃砂は、多孔質に形成され、嫌気性微生物と好気性微生物とを共存させた有用微生物群の恰好の住処となる。

【0006】本願発明の上述の目的、その他の目的、特徴および利点は、図面を参照して行う以下の発明の実施の形態の詳細な説明から一層明らかとなろう。

【0007】

【発明の実施の形態】

【実施例】図1および図2は、本願発明にかかる処理液の腐敗遅延処理方法に適用される腐敗抑止体の製造方法の一例の要部を示す工程説明図である。先ず、鋳型の廃砂12が準備される。廃砂12は、たとえば図1(A)

に示すように、容器14内に入れられる。廃砂12は、後述する有用微生物群の住処となる有用微生物担持体としての機能を有する。次に、容器14内の廃砂12に、有用微生物群の培養液16が注入される。培養液16は、たとえば乳酸菌、酵母菌、放線菌、光合成菌、有用糸状菌など10属80種以上の有用微生物群を複合した培養液であり、容器18内に適宜収納されている。培養液16についてさらに詳しく説明すると、培養液16は、嫌気性微生物と好気性微生物とを共生させた有用微生物群を殺菌処理を施した天然の糖蜜によってたとえば40日間複合培養させて、pH3.5以下にしたものである。また、廃砂12に注入されるものとしては、上述の培養液16から低分子化の多糖類などの抗酸化物質を抽出し濃縮したもの（有用微生物発酵物質）も使用され得る。さらに詳しく説明すると、この有用微生物発酵物質は、熱帯から温帯域の植物や海草を培養液16で発酵させ、オゾンにより酸化物を除去し、各種フィルターにて残渣や微生物を除去した有用微生物発酵物質である。本成分中には、植物由来、微生物由来の抗酸化物質も多種類含有されている。有用性微生物群から作り出される抗酸化物質の種類およびその作用について詳しく説明する。

(1) フラボノイド類化合物

大部分は糖類の結合した配糖体として存在し、薬理作用または生理活性作用として抗発ガンプロモーター抑制効果や非常に強い抗酸化作用、血小板凝集抑制作用を有する。また、酸化作用の要因となるフリーラジカルの消去などに作用すると共に、抗菌活性作用も有する。

(2) サポニン（トリテルペン化合物の配糖体）

植物由来の生理活性物質として存在し、ラジカルの不対電子の消去作用などの抗酸化作用を有する。その作用効果は比較的強く安定維持する。

(3) ユビキノン

光合成栄養細菌由来の生体内抗酸化物質として存在し、生体内の酵素系と反応し強い抗酸化作用を示す。

(4) カロテノイド類化合物

光合成栄養細菌由来のリコペンが含有され、活性酸素を消去する作用を有し、生体の損傷を防御する。

(5) ビタミンE、ビタミンC（小分子抗酸化物質）

α 、 β 、 γ 、 δ 、トコフェロールを含有し、食用油の酸化防止作用を有する。特に、生体膜の高度不飽和脂肪酸の酸化を防止する。

(6) Na、Mg、P、K、Ca等の約40種の金属ミネラル類

これらの金属ミネラルで2価のカチオンに属するミネラル類は、生体内の抗酸化酵素や数々の酸化還元酵素と共役反応を促進する。また、電気伝導率を促進し、防錆効果も促進させる。

【0008】そして、廃砂12と培養液16とが混練された後、たとえば図1（B）に示すように、型枠部材2

0で所定の形状に成形される。型枠部材20は、複数の成形凹部26を備えた上型22および下型24を含む。廃砂12と培養液16との混練物は、下型24の複数の成形凹部26、26、・・・、26に入れられ、さらに、上型22がセットされる。廃砂12と培養液16との混練物は、成形凹部26の形状に応じて適宜成形される。図1（B）に示す本実施例にかかる型枠部材20では、上型22および下型24のそれぞれに略半球状の成形凹部26が形成されている。したがって、成形凹部26に入れられた廃砂12と培養液16との混練物は、略球形のブロック状に保型・成形された混練物10aとなる。

【0009】それから、型枠部材20は、たとえば図2（A）に示すように、加熱装置28により、所定の加熱温度、加熱時間で加熱される。そのため、型枠部材20の成形凹部で所定の形状に保型・成形された廃砂12と培養液16との混練物10aは、焼結される。そして、加熱装置28から型枠部材20を取り出して、その上型22および下型24を分離させる。それから、各成形凹部26から所定形状を有する焼結体が離型される。その結果、本実施例では、図2（B）に示すように、略球形ブロック状の腐敗抑止体10が得られる。

【0010】図3は、本願発明にかかる処理液の腐敗遅延処理方法の一例を示す説明図である。本実施例では、図1および図2に示した製造工程により得られた腐敗抑止体を用いて、特に、NC旋盤等の工作機械の使用の際に用いられる切削油の腐敗を遅延させる遅延処理方法について説明する。すなわち、先ず、上述の製造工程により得られた腐敗抑止体10が準備される。次に、所定量の腐敗抑止体10を工作機械40内の切削油収納タンク42に混入するため、腐敗抑止体収納保持装置50に収納される。腐敗抑止体収納保持装置50は、たとえば図4に示すように、略直方体の網かごで形成される収納部本体52を含む。収納部本体52の長さ方向の一端および他端には、それぞれ、収納部本体52を所定の位置に取り付けるための取付け部材54、54が配設される。取付け部材54は、たとえば断面矩形棒状の支持部54aと、支持部54aの先端部に設けられる逆U字状の吊下げ係止部54bとで形成される。

【0011】所定量の腐敗抑止体10を収納した腐敗抑止体収納保持装置50は、特に、図3に示すように、工作機械40内の切削油収納タンク42に着脱自在に取り付けられる。切削油を貯蔵する切削油収納タンク42は、上面が開放された直方体状に形成され、その下面隅部に4つの移動用キャスター44を有する。切削油収納タンク42は、工作機械40の側面部からその内部に適宜収容される構造となっている。本実施例では、腐敗抑止体収納保持装置50の吊下げ係止部54bを切削油収納タンク42の長さ方向の一端側の側壁面に係止することにより、所定量の腐敗抑止体10を収納した収納部本

体52が切削油42aに浸漬された状態で保持される。

【0012】上述の実施例では、所定量の腐敗抑止体10を切削油42a内に浸漬させることにより、切削油42aの腐敗を遅延させたが、さらに、所定量の腐敗抑止体10に加えて、有用性微生物群の培養液16を別途、切削油42a中に注入する工程を追加してもよい。

【0013】本実施例で示した切削油等の潤滑組成物の腐敗遅延処理方法によれば、所定量の腐敗抑止体10中の有用微生物群の作りだす抗酸化物質および有機酸の作用により、切削油42aの悪臭物質を出す腐敗菌を抑制するため、切削油42aの腐敗を遅延、防止させることができる。発明者の実験によれば、腐敗抑止体10を浸漬した場合の切削油42aと、そうでない切削油42aだけのものとをNC旋盤等の工作機械40で使用して比較してみると、腐敗抑止体10を入れていない切削油42aだけの場合、1週間程度で悪臭を発生するが、腐敗抑止体10を浸漬した場合の切削油42aでは、長期間、悪臭が発生しないことが確認されている。

【0014】有用微生物群が作りだす抗酸化物質は、有機酸、アミノ酸、糖類、ビタミン等を含み、これらは有用微生物の発酵を促進すると共に、切削油42aの腐敗を防止する。すなわち、嫌気性微生物と好気性微生物とを共生させた有用微生物群からつくられ、抗酸化物質および有機酸は、切削油42aの酸化を防止し、切削油42aの悪臭源となる腐敗菌の増加を抑制する。また、鋳型の廃砂12は、多孔質に形成され、嫌気性微生物と好気性微生物とを共生させた有用微生物群の恰好の住処となり、有用性微生物群の発酵を促進させる。

【0015】したがって、本実施例では、従来より問題となっていた切削油42aの廃液の悪臭の発生を防止することができる。そのため、工作機械40を使用する作業者の作業環境および工場周辺の生活環境にも悪影響をおよぼすことがない。また、切削油42aの廃液は、悪臭を発生させることなく、環境に優しい状態で廃棄することができる。さらに、切削油42aの取り替え頻度も少なくなり、工作機械40に対するランニングコストも低くすることができる。しかも、嫌気性微生物と好気性微生物とを共生させた有用微生物群の住処となる有用微生物担持体として、鋳型の廃砂12が利用されるため、廃材資源の再利用という観点においても非常に有用な方法である。鋳型の廃砂12は、たとえばセラミックスと比較しても、安価に有用微生物担持体を成形することが可能となるため、製造コストも低減できる。

【0016】図5は、図4に示す使用方法に適用される腐敗抑止体の取付け方法の他の例を示す斜視的図解図である。図5に示す腐敗抑止体収納保持装置50は、図4に示すものと比べて、特に、所定量の腐敗抑止体10が開放口56aを有する収納網袋56内に収納される。開放口56aは、紐状の結束部材58で開放口56aの近傍を結束することにより、閉塞される。結束部材58に

は、その先端部にフック部60aを有する鎖状の吊り下げ部材60が設けられる。図5に示す腐敗抑止体収納保持装置50も、先の実施例と同様に、吊り下げ部材60のフック部60aを切削油収納タンク42の側壁面に係止することにより、収納網袋56内に収納された所定量の腐敗抑止体10が切削油42aに浸漬される。

【0017】図6は、図1および図2に示した製造工程により得られるブロック状の腐敗抑止体の他の例を示す斜視的図解図である。先の実施例では、腐敗抑止体10が略球形ブロック状に形成されたが、腐敗抑止体10の形状はそれに限定されるものではなく、図6(A)～(C)に示すように、三角錐状、円筒状および立方体状などに形成されてもよく、それ以外にも、たとえば直方体状、断面多角形柱状、平板状、環状等任意の形状に形成してもよい。

【0018】上述の実施例では、処理液の一例として、切削油の腐敗遅延処理方法について説明したが、本願発明にかかる腐敗遅延処理方法は、切削油以外にも、作動油、金属引抜き油、フラッシング油、防錆油等の潤滑組成物およびそれに類似するものの腐敗遅延処理方法についても適用される。さらに、本願発明にかかる腐敗遅延処理方法は、切削油、作動油等の潤滑組成物以外にも、たとえば工作機械で作られた部品等を洗浄する洗浄機の使用の際に用いられる洗浄液、清浄液等の洗浄性組成物およびそれに類似するものの腐敗遅延処理方法についても適用され得るものである。

【0019】

【発明の効果】本願発明によれば、各種機械の使用の際に用いられる切削油、洗浄液等処理液の腐敗を遅延させると共に、処理液の悪臭発生を防止することができる。そのため、各種機械を使用する作業者の作業環境および工場周辺の生活環境にも悪影響をおよぼすことがない。また、処理液の廃液も環境に優しい状態で廃棄することができる。さらに、処理液および工作機械に対するランニングコストも低くすることができる。しかも、嫌気性微生物と好気性微生物とを共生させた有用微生物群の住処となる有用微生物担持体として、鋳型の廃砂が利用されるため、廃材資源の再利用を図ることができる。

【図面の簡単な説明】

【図1】本願発明にかかる処理液の腐敗遅延処理方法に適用される腐敗抑止体の製造方法の一例の要部を示す工程説明図である。

【図2】本願発明にかかる処理液の腐敗遅延処理方法に適用される腐敗抑止体の製造方法の一例の他の要部を示す工程説明図である。

【図3】本願発明にかかる処理液の腐敗遅延処理方法の一例を示す説明図である。

【図4】図3に示す処理液の腐敗遅延処理方法に適用される腐敗抑止体収納保持装置の一例を示す斜視的図解図である。

【図5】図3に示す処理液の腐敗遅延処理方法に適用される腐敗抑止体収納保持装置の他の例を示す斜視的図解図である。

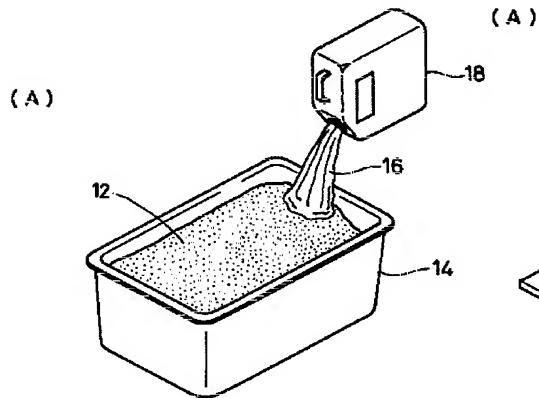
【図6】図3に示す処理液の腐敗遅延処理方法に適用される腐敗抑止体の他の例を示す斜視的図解図である。

【符号の説明】

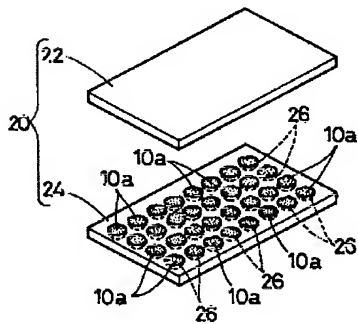
10 腐敗抑止体
10a 所定の形状に保型・成形された混練物
12 鑄型の廃砂
14, 18 容器
16 有用微生物群を複合した培養液
20 型枠部材
22 上型
24 下型

26 成形凹部
28 加熱装置
30 焼結体
40 工作機械
42 切削油収納タンク
42a 切削油
44 移動用キャスター
50 腐敗抑止体収納保持装置
52 収納部材本体
54 取付け部材
56 収納網袋
58 結束部材
60 吊り下げ部材
60a フック部

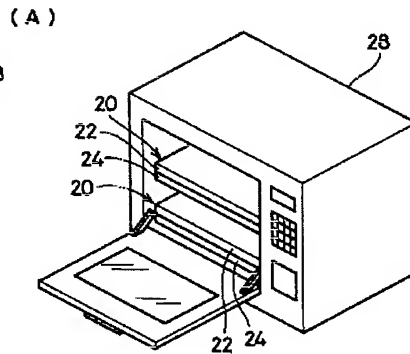
【図1】



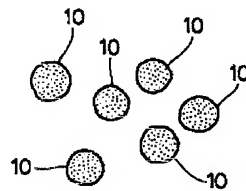
(B)



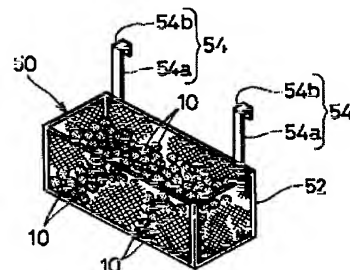
【図2】



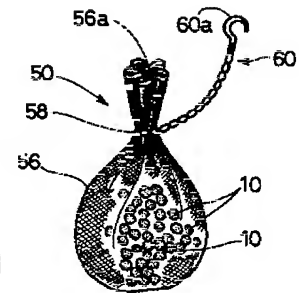
(B)



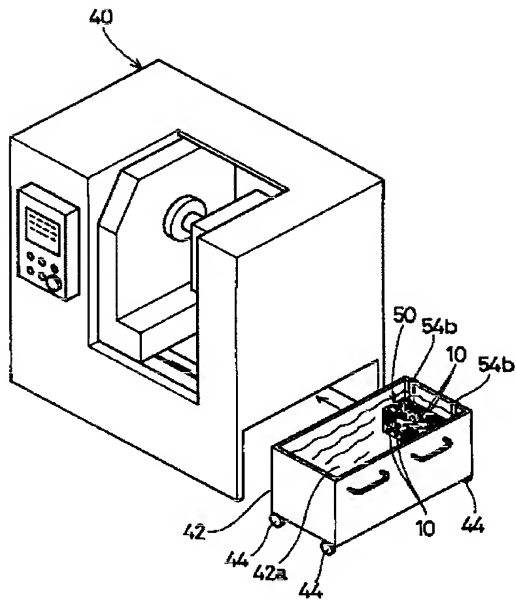
【図4】



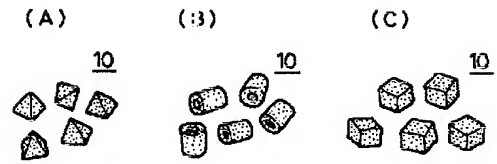
【図5】



【図3】



【図6】



フロントページの続き

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DG03 DG16
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AC04 BA01

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- 3.In the drawings, any words are not translated.**

CLAIMS

[Claim(s)]

[Claim 1] The putrefaction delay art of the processing liquid which includes the process which mixes the putrefaction suppression object which has the antioxidation operation which the waste sand of mold was made to contain the effective microorganisms which made an anaerobic microorganism and aerobic bacteria live together, and was formed in the processing liquid used in the case of the activity of various machines.

[Claim 2] The putrefaction delay art of processing liquid according to claim 1 by which said putrefaction suppression object is manufactured by the manufacture approach including the process which kneads the culture medium and said waste sand of said effective microorganisms, and builds a kneading object, and the process which sinters a ** type, the process to fabricate, and said ** type and said fabricated kneading object for said kneading object in a predetermined configuration, and forms the putrefaction suppression object of a predetermined configuration.

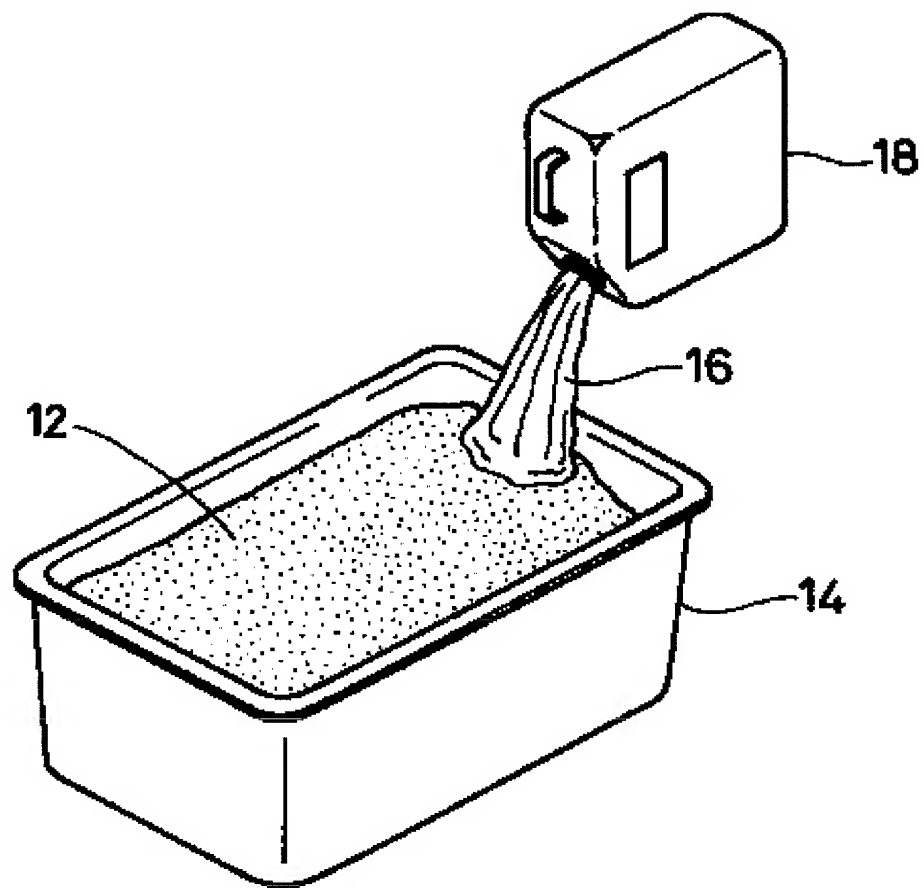
[Claim 3] The putrefaction delay art of the processing liquid according to claim 1 or 2 which includes the process which pours said effective microorganisms into said processing liquid further while said putrefaction suppression object is immersed in said processing liquid.

[Claim 4] Said processing liquid is the putrefaction delay art of the processing liquid according to claim 1 to 3 which includes lubrication constituents, such as cutting oil, hydraulic oil, a metal drawing oil, flushing oil, and slushing oil.

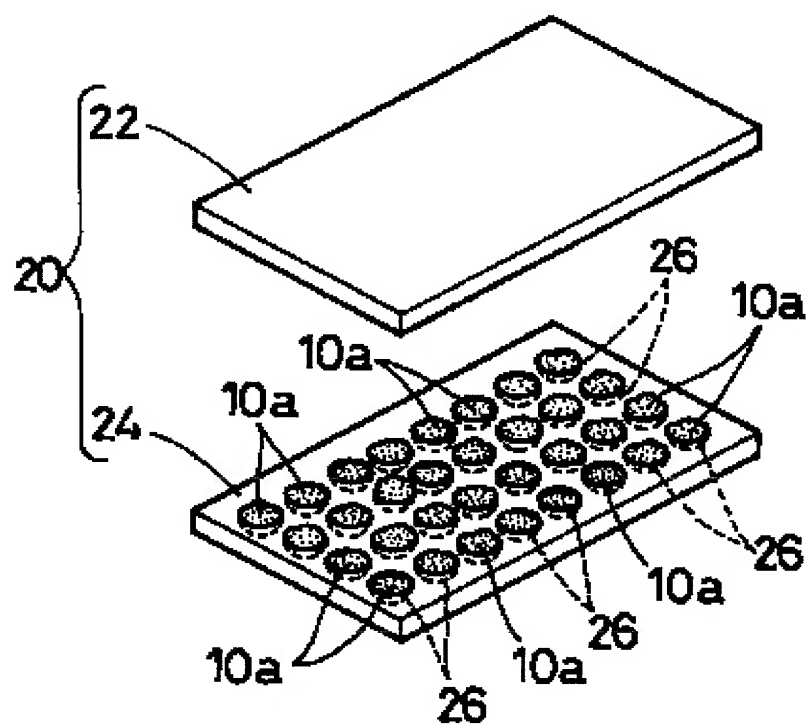
[Claim 5] Said processing liquid is the putrefaction delay art of the processing liquid according to claim 1 to 3 which includes detergency constituents, such as a penetrant remover and a detergent solution.

[Translation done.]

(A)



(B)



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially the invention in this application relates to the putrefaction delay art of the processing liquid containing a thing similar to detergency constituents, such as a penetrant remover and a detergent solution, and it which are used for a thing similar to lubrication constituents, such as cutting oil used in the case of the activity of various machines, such as a machine tool, a working fluid, a metal drawing oil, flushing oil, and slushing oil, and it, and the washing machine which washes a machine part about the putrefaction delay art of processing liquid.

[0002]

[Description of the Prior Art] Conventionally, since it decomposed while being used in the machine with high temperature, after the period activity of predetermined was carried out, disposal of the cutting oil used for machine tools, such as NC engine lathe, hydraulic oil, the slushing oil, etc. was carried out as it was as waste fluid. And cutting oil etc. is newly poured into a machine tool. Moreover, the same thing was performed also with the activity of a penetrant remover, a detergent solution, etc. which are used when a washing machine washes the various components manufactured with the machine tool etc.

[0003]

[Problem(s) to be Solved by the Invention] However, waste fluid, such as such rotten cutting oil, generates an offensive odor, and the offensive odor may reach even on the outskirts of works in works. The offensive odor of these waste fluid became what has an especially severe summer etc., and the work environment of the operator who works in works, and the living environment for the residents around works are injured. Moreover, the more the period which discards waste fluid, such as cutting oil, becomes short, replacement frequency, such as cutting oil, also increases and, the more a running cost is also attached highly.

[0004] So, the main object of the invention in this application is offering the putrefaction delay art of the processing liquid which can prevent offensive odor generating of processing liquid while delaying putrefaction of processing liquid, such as cutting oil used in the case of the activity of various machines, hydraulic oil, and a penetrant remover.

[0005]

[Means for Solving the Problem] The invention in this application concerning claim 1 is the putrefaction delay art of the processing liquid which includes the process which mixes the putrefaction suppression object which has the antioxidation operation which the waste sand of mold was made to contain the effective microorganisms which made an anaerobic microorganism and aerobic bacteria live together, and was formed in the processing liquid used in the case of the activity of various machines. The invention in this application concerning claim 2 is the putrefaction delay art of the processing liquid concerning claim 1 by which a putrefaction suppression object is manufactured by the manufacture approach including the process which kneads the culture medium and the waste sand of effective microorganisms, and builds a kneading object, and the process which sinter a ** type, the process to fabricate and a ** type, and the fabricated kneading object in a predetermined configuration for a kneading object, and form the putrefaction suppression object of a predetermined configuration. The invention in this application concerning claim 3 is the putrefaction delay art of the processing liquid concerning claim 1 or claim 2 which includes the process which pours effective microorganisms into processing liquid further while being immersed in processing liquid in a putrefaction suppression object. The invention in this application concerning claim 4 is the putrefaction delay art of the processing liquid concerning either of claims 1 thru/or claims 3 in which processing liquid includes lubrication constituents, such as cutting oil, hydraulic oil, a metal drawing oil, flushing oil, and slushing oil. The invention in this application concerning claim 5 is the putrefaction delay art of the processing liquid concerning either of claims 1 thru/or claims 3 in which processing liquid includes detergency constituents, such as a penetrant remover and a detergent solution.

[Operation] The antioxidant made from the usefulness microbial population contained on a putrefaction suppression object prevents oxidation of processing liquid, such as cutting oil, and prevents putrefaction while these promote the

fermentation of effective microorganisms including an organic acid, amino acid, a saccharide, a vitamin, etc. That is, the antioxidant and organic acid which are made from the effective microorganisms which made an anaerobic microorganism and aerobic bacteria live together control the increment in the saprogenic bacteria used as the source of an offensive odor of processing liquid. Moreover, the waste sand of mold is formed in porosity and serves as a suitable house of the effective microorganisms which made an anaerobic microorganism and aerobic bacteria live together. [0006] The above-mentioned object of the invention in this application, the other objects, the description, and an advantage will become still clearer from detailed explanation of the gestalt of implementation of the following invention performed with reference to a drawing.

[0007]

[Embodiment of the Invention]

[Example] Drawing 1 and drawing 2 are the process explanatory views showing the important section of an example of the manufacture approach of the putrefaction suppression object applied to the putrefaction delay art of the processing liquid concerning the invention in this application. First, the waste sand 12 of mold is prepared. Waste sand 12 is put in in a container 14, as shown in drawing 1 (A). Waste sand 12 has a function as useful microorganism support used as the house of the effective microorganisms mentioned later. Next, the culture medium 16 of effective microorganisms is poured into the waste sand 12 in a container 14. Culture medium 16 is culture medium which compounded the effective microorganisms of 80 or more sorts of ten groups, such as lactic acid bacteria, a yeast fungus, an Actinomyces, a photosynthetic bacterium, and useful mold, and is suitably contained in the container 18. If it explains in more detail about culture medium 16, by the natural molasses which performed sterilization processing, compound culture will be carried out, for example for 40 days, and culture medium 16 will set to 3.5 or less pH the effective microorganisms which made an anaerobic microorganism and aerobic bacteria live together. Moreover, what extracted and condensed antioxidants, such as polysaccharide of depolymerize, from the above-mentioned culture medium 16 as what is poured into waste sand 12 (useful microbial fermentation matter) may be used. When it explains in more detail, this useful microbial fermentation matter is useful microbial fermentation matter from which the vegetation and seaweed of a temperate region were fermented [tropical area] with culture medium 16, ozone removed the oxide, and residue and a microorganism were removed with various filters. Into this component, variety content also of the antioxidant of the vegetable origin and the microorganism origin is carried out. The class of antioxidant made from usefulness microbial population and its operation are explained in detail.

(1) A flavonoids compound most exists as a glycoside which the saccharide combined, and has anti-^{**} gun promotor depressor effect, a very strong antioxidation operation, and platelet aggregation depressant action as a pharmacological action or a bioactive operation. Moreover, while acting on elimination of the free radical leading to the oxidation etc., it also has an antimicrobial activity operation.

(2) Saponin (glycoside of the Tori Tell Ben compound)

It exists as a physiological active substance of the vegetable origin, and has an antioxidation operation of an elimination operation of the unpaired electron of a radical etc. The operation effectiveness carries out stable maintenance comparatively strongly.

(3) It exists as an antioxidant of the ubiquinone photosynthesis nutrition bacteria origin in the living body, and reacts with an enzyme system in the living body, and a strong antioxidation operation is shown.

(4) The lycopene of the carotenoid compound photosynthesis nutrition bacteria origin contains, and it has the operation which eliminates active oxygen, and defend breakage on a living body.

(5) Vitamin E, vitamin C (small molecule antioxidant)

alpha, beta, gamma, delta, and a tocopherol are contained and it has an antioxidizing operation of edible oil. Especially, oxidation of the higher unsaturated fatty acid of a biomembrane is prevented.

(6) about 40 sorts of metal minerals, such as Na, Mg, P, K, and calcium, -- the minerals belonging to a cation divalent by these metal minerals promote an antioxidation enzyme in the living body, many oxidoreductases, and a coupling reaction. Moreover, conductivity is promoted and the rust-proofing effectiveness is also promoted.

[0008] And it is fabricated by the configuration predetermined by the shuttering member 20, after waste sand 12 and culture medium 16 are kneaded, for example, as shown in drawing 1 (B). The shuttering member 20 is included with a punch 22 and female mold 24 equipped with two or more shaping crevices 26. The kneading object of waste sand 12 and culture medium 16 is put in in two or more shaping crevices 26, 26, ..., 26 of female mold 24, and a punch 22 is set further. The kneading object of waste sand 12 and culture medium 16 is suitably fabricated according to the configuration of the shaping crevice 26. The abbreviation semi-sphere-like shaping crevice 26 is formed in each of a punch 22 and female mold 24 in the shuttering member 20 concerning this example shown in drawing 1 (B). Therefore, the kneading object of the waste sand 12 and the culture medium 16 into which it was put in the shaping crevice 26 becomes the letter of a block of an abbreviation globular form with a ^{**} type and fabricated kneading object 10a.

[0009] And the shuttering member 20 is heated by heating time whenever [predetermined stoving temperature] by heating apparatus 28, as shown in drawing 2 (A). Therefore, kneading object 10a of a ^{**} type, and the waste sand 12

and the culture medium 16 which were fabricated is sintered by the configuration predetermined in the shaping crevice of the shuttering member 20. And the shuttering member 20 is taken out from heating apparatus 28, and the punch 22 and female mold 24 are made to separate. And the sintered compact which has a predetermined configuration from each shaping crevice 26 is released from mold. Consequently, in this example, as shown in drawing 2 (B), the putrefaction suppression object 10 of the letter of an abbreviation globular form block is acquired.

[0010] Drawing 3 is the explanatory view showing an example of the putrefaction delay art of the processing liquid concerning the invention in this application. This example explains the delay art which delays putrefaction of the cutting oil especially used using the putrefaction suppression object acquired according to the production process shown in drawing 1 and drawing 2 in the case of the activity of machine tools, such as NC engine lathe. That is, the putrefaction suppression object 10 acquired according to the above-mentioned production process is prepared first. Next, it is contained by the putrefaction suppression object receipt supporting structure 50 in order to mix the putrefaction suppression object 10 of the specified quantity in the cutting oil receipt tank 42 in a machine tool 40. The putrefaction suppression object receipt supporting structure 50 includes the stowage body 52 formed with the network cage of an abbreviation rectangular parallelepiped, as shown in drawing 4. The anchoring members 54 and 54 for attaching the stowage body 52 in a position are arranged by the end and the other end of the die-length direction of the receipt branch body 52, respectively. The anchoring member 54 is formed by supporter 54a of the shape for example, of a cross-section rectangle rod, and inverted-L-shaped hanging stop section 54b prepared in the point of supporter 54a.

[0011] Especially the putrefaction suppression object receipt supporting structure 50 that contained the putrefaction suppression object 10 of the specified quantity is attached in the cutting oil receipt tank 42 in a machine tool 40 free [attachment and detachment], as shown in drawing 3. The cutting oil receipt tank 42 which stores cutting oil is formed in the shape of [the top face was opened] a rectangular parallelepiped, and has four axle-pin rakes 44 for migration in the underside corner. The cutting oil receipt tank 42 has structure suitably held in the interior from the lateral portion of a machine tool 40. At this example, the stowage body 52 which contained the putrefaction suppression object 10 of the specified quantity is held in the condition of having been immersed in cutting oil 42a, by stopping hanging stop section 54b of the putrefaction suppression object receipt supporting structure 50 to the side-attachment-wall side by the side of the end of the die-length direction of the cutting oil receipt tank 42.

[0012] Although putrefaction of cutting oil 42a was delayed in the above-mentioned example by making the putrefaction suppression object 10 of the specified quantity immersed in cutting oil 42a, in addition to the putrefaction suppression object 10 of the specified quantity, the process which pours in the culture medium 16 of usefulness microbial population into cutting oil 42a separately may be added further.

[0013] Since the saprogenic bacteria which take out the malodorous substance of cutting oil 42a are controlled, it can be delayed and putrefaction of cutting oil 42a can be made to prevent according to an operation of the antioxidant and organic acid which the effective microorganisms in the putrefaction suppression object 10 of the specified quantity make according to the putrefaction delay art of lubrication constituents, such as cutting oil shown by this example. If the machine tools 40, such as NC engine lathe, compare the putrefaction suppression object 10 using cutting oil 42a at the time of being immersed, and the thing of only cutting oil 42a which is not so according to the experiment of an artificer, only in cutting oil 42a which is not putting in the putrefaction suppression object 10, will generate an offensive odor in about one week, but It is checked that an offensive odor does not generate the putrefaction suppression object 10 in cutting oil 42a at the time of being immersed for a long period of time.

[0014] The antioxidant which effective microorganisms make prevents putrefaction of cutting oil 42a while these promote the fermentation of a useful microorganism including an organic acid, amino acid, a saccharide, a vitamin, etc. That is, the antioxidant and organic acid which are made from the effective microorganisms which made an anaerobic microorganism and aerobic bacteria live together prevent oxidation of cutting oil 42a, and control the increment in the saprogenic bacteria used as the source of an offensive odor of cutting oil 42a. Moreover, the waste sand 12 of mold is formed in porosity, serves as a suitable house of the effective microorganisms which carried out coexistence symbiosis of an anaerobic microorganism and the aerobic bacteria, and promotes the fermentation of usefulness microbial population.

[0015] Therefore, in this example, generating of the offensive odor of the waste fluid of cutting oil 42a which had become a problem conventionally can be prevented. therefore, the work environment of the operator who uses a machine tool 40 and the living environment around works -- an adverse effect -- ***** -- there are nothings. Moreover, the waste fluid of cutting oil 42a can be discarded in the environment-friendly condition, without generating an offensive odor. Furthermore, the replacement frequency of cutting oil 42a also decreases, and the running cost to a machine tool 40 can also be made low. And as useful microorganism support used as the house of the effective microorganisms which made an anaerobic microorganism and aerobic bacteria live together, since the waste sand 12 of mold is used, also in the viewpoint of recycling of a scrap wood resource, it is a very useful approach. Since the waste sand 12 of mold becomes possible [fabricating useful microorganism support cheaply] even if it compares it with the

ceramics, a manufacturing cost can also be reduced.

[0016] Drawing 5 is strabism-illustration drawing showing other examples of the approach the putrefaction suppression object applied to the operation shown in drawing 4 should cling. The putrefaction suppression object receipt supporting structure 50 shown in drawing 5 is especially contained compared with what is shown in drawing 4 in the receipt string bag 56 with which the putrefaction suppression object 10 of the specified quantity has clear aperture 56a. Clear aperture 56a is blockaded by banding together near the clear aperture 56a by the string-like union member 58. The hanging member 60 of the shape of a chain which has hook section 60a in the point is formed in the union member 58. It is immersed [like / the putrefaction suppression object receipt supporting structure 50 shown in drawing 5 / a previous example] in cutting oil 42a in the putrefaction suppression object 10 of the specified quantity contained in the receipt string bag 56 by stopping hook section 60a of the hanging member 60 to the side-attachment-wall side of the cutting oil receipt tank 42.

[0017] Drawing 6 is strabism-illustration drawing showing other examples of the putrefaction suppression object of the letter of a block acquired according to the production process shown in drawing 1 and drawing 2 . in the previous example, although the putrefaction suppression object 10 was formed in the shape of an abbreviation globular form block, the configuration of the putrefaction suppression object 10 is not limited to it, and is shown in drawing 6 (A) - (C) -- as -- the shape of a triangular pyramid -- it forms cylindrical, in the shape of a cube, etc. -- you may have -- other than this -- being also alike -- for example, you may form in configurations of arbitration, such as the shape of a rectangular parallelepiped, a cross-section polygon column, plate-like, and annular.

[0018] Although were and the above-mentioned example explained to the putrefaction delay art of cutting oil as an example of processing liquid, the putrefaction delay art concerning the invention in this application is applied also about a putrefaction delay art, although it is similar to lubrication constituents, such as hydraulic oil, a metal drawing oil, flushing oil, and slushing oil, and it besides cutting oil. Furthermore, the putrefaction delay art concerning the invention in this application may be applied also about a putrefaction delay art, although it is similar to detergency constituents, such as a penetrant remover, a detergent solution, etc. which are used in the case of the activity of the soaping machine which washes the components made from the machine tool besides lubrication constituents, such as cutting oil and hydraulic oil, and it.

[0019]
[Effect of the Invention] While delaying putrefaction of processing liquid, such as cutting oil used in the case of the activity of various machines and a penetrant remover, according to the invention in this application, offensive odor generating of processing liquid can be prevented. therefore, the work environment of the operator who uses various machines and the living environment around works -- an adverse effect -- ***** -- there are nothings. Moreover, the waste fluid of processing liquid can also be discarded in the environment-friendly condition. Furthermore, the running cost to processing liquid and a machine tool can also be made low. And as useful microorganism support used as the house of the effective microorganisms which made an anaerobic microorganism and aerobic bacteria live together, since the waste sand of mold is used, recycling of a scrap wood resource can be aimed at.

[Translation done.]

* NOTICES *

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- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the process explanatory view showing the important section of an example of the manufacture approach of the putrefaction suppression object applied to the putrefaction delay art of the processing liquid concerning the invention in this application.

[Drawing 2] It is the process explanatory view showing other important sections of an example of the manufacture approach of the putrefaction suppression object applied to the putrefaction delay art of the processing liquid concerning the invention in this application.

[Drawing 3] It is the explanatory view showing an example of the putrefaction delay art of the processing liquid concerning the invention in this application.

[Drawing 4] It is strabism-illustration drawing showing an example of the putrefaction suppression object receipt supporting structure applied to the putrefaction delay art of the processing liquid shown in drawing 3 .

[Drawing 5] It is strabism-illustration drawing showing other examples of the putrefaction suppression object receipt supporting structure applied to the putrefaction delay art of the processing liquid shown in drawing 3 .

[Drawing 6] It is strabism-illustration drawing showing other examples of the putrefaction suppression object applied to the putrefaction delay art of the processing liquid shown in drawing 3 .

[Description of Notations]

- 10 Putrefaction Suppression Object
- 10a The kneading object of which a ** type and shaping were done at the predetermined configuration
- 12 Waste Sand of Mold
- 14 18 Container
- 16 Culture Medium Which Compounded Effective Microorganisms
- 20 Shuttering Member
- 22 Punch
- 24 Female Mold
- 26 Shaping Crevice
- 28 Heating Apparatus
- 30 Sintered Compact
- 40 Machine Tool
- 42 Cutting Oil Receipt Tank
- 42a Cutting oil
- 44 Axle-pin Rake for Migration
- 50 Putrefaction Suppression Object Receipt Supporting Structure
- 52 Stowage Material Body
- 54 Anchoring Member
- 56 Receipt String Bag
- 58 Union Member
- 60 Hanging Member
- 60a Hook section

[Translation done.]

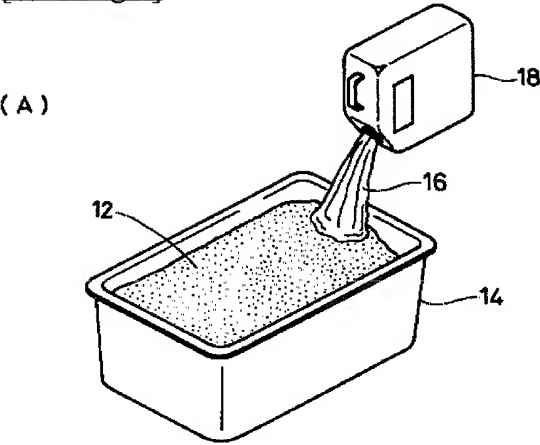
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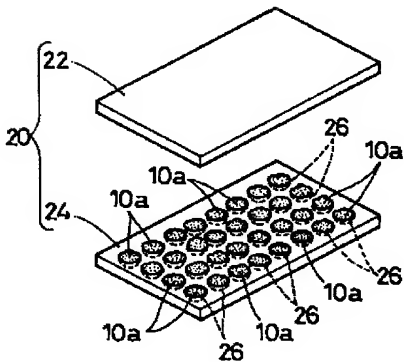
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DRAWINGS

[Drawing 1]

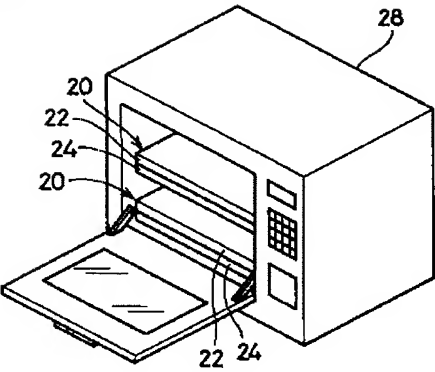


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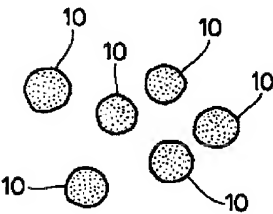


[Drawing 2]

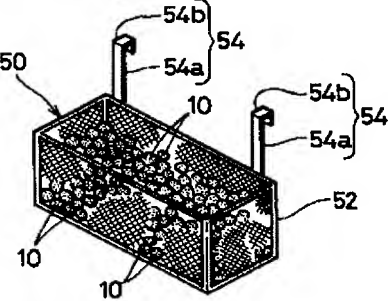
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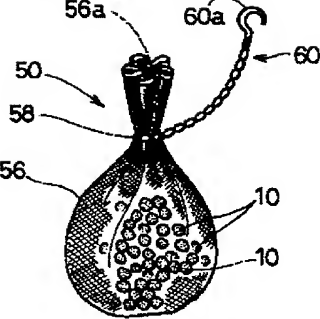
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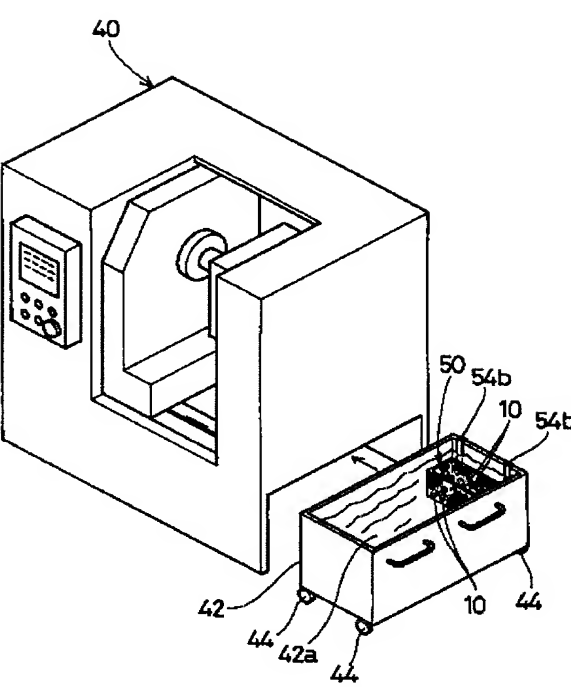
[Drawing 4]



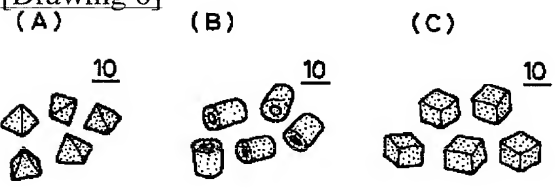
[Drawing 5]



[Drawing 3]



[Drawing 6]



[Translation done.]